

Automated Processing Of Quad Array Data

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Summary

A quad array acoustic imaging system used in underwater applications is discussed. In this configuration, a $2N$ -element crossed array results in an effective data aperture equivalent to that of a N^2 filled array. The underwater images of corner reflectors, wooden rods, and a planar letter E at an ultrasonic frequency of 152 kHz have shown the feasibility of the system. The quad array with an electronic scanning ability, compared to mechanical scanning, reduced the data acquisition and processing time from 3 h to 10 min. A typical application of this system would be on a remotely piloted vehicle (RPV) for imaging in a turbid environment, on small fishing boats for detecting a shoal of fish, or in medical imaging applications

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